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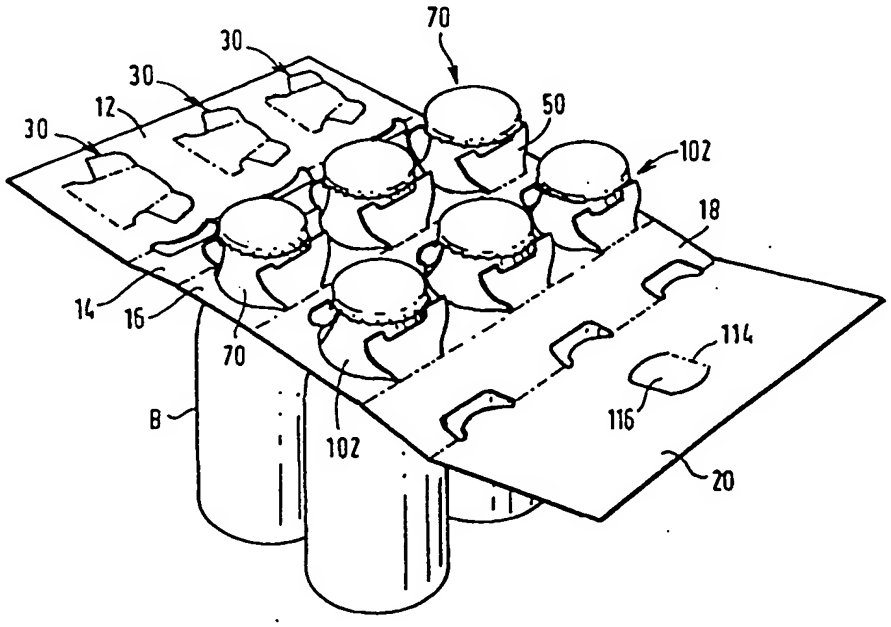

(57) Abstract

A carton of the top gripping type for accommodating a plurality of containers, for example, bottles, which carton is tubular in structure and comprises a first panel (16) having a plurality of apertures, each has at least one foldable tab (50) which operatively engages the underside of a radially protruding part of a container present in the aperture and a second panel (12) spaced from the first panel and comprising a support tab (30) struck from said second panel, said support tab comprising a main portion and a shoulder portion wherein an edge of said shoulder portion also operatively engages the underside of said radially protruding part to restrict movement of said second panel relative to upper portions of the container, said main portion being disposed between a pair of adjacent apertures to minimize relative

ARTICLE CARRIER AND BLANK THEREFOR

Background of the Invention

The invention relates to a carton produced for packaging a plurality of articles, for example, bottles. More particularly, the invention relates to a carton which attaches to the tops of the articles thereby securing the articles in an array.

It is known to provide top gripping cartons which comprise so called "sunburst" apertures having a series of circumferentially arranged tabs which enable a bottle top to pass through the aperture which tabs engage on the underside of a bottle top or on the flange of a bottle neck to prevent the removal of the bottle from the aperture. A problem arises when such sunburst type apertures are used for bottles sealed using so called "crown corks". In this case, the location in which the tab engages on the underside of the bottle top is by its location high up the bottle neck, which creates a carton that is unstable. Further, the tabs are weakened by the unstable nature of the bottles within the carton so reducing its effectiveness.

A further problem is that a top gripping carton needs to be of sufficient strength to support the bottles. A rigid structure would address this problem but produces its own difficulties. In particular, the top panel and or base panel does not provide requisite rigidity and sufficient strength to support the bottles.

Summary of the Invention

The present invention seeks to overcome the difficulties by forming a box structure in which both the top and base are engaged on the bottle flanges. Additional support is provided to maintain the top and base panels in a spaced arrangement while additional strength is provided by multi-layering the panels. Therefore, the board can be

reduced in thickness without reducing the strength needed to hold the bottles.

One aspect of the present invention provides a carton of the top gripping type for accommodating a plurality of containers, for example, bottles, which carton is tubular in structure and comprises a first panel having a plurality of apertures each has at least one foldable tab which operatively engages the underside of a radially protruding part of a container present in the aperture and a second panel spaced from the first panel and comprising a support tab struck from the second panel, the support tab comprising a main portion and a shoulder portion wherein an edge of the shoulder portion also operatively engages the underside of the radially protruding part to restrict movement of the second panel relative to upper portions of the container, the main portion being disposed between a pair of adjacent containers to minimize relative movement between those containers.

According to an optional feature of this aspect of the invention, each aperture may comprise a pair of tabs struck from the first panel being disposed in substantially opposed positions, the tabs comprising a shallow notch adapted to receive a portion of the radially protruding part of the container.

According to another optional feature of this aspect of the invention, the support tab struck from the second panel may further comprise a second shoulder portion oppositely disposed the first shoulder portion and adapted to operatively engage the underside of a radially protruding part of the adjacent container.

According to a further optional feature of this aspect of the invention, the support tab may abut the second panel to minimize relative movement between the first panel and the second panel.

Another aspect of the invention provides a unitary blank for forming a carton of the top gripping type which comprises a first panel having a plurality of

apertures each of which has at least one foldable tab around each the aperture and foldable stand out a general plane thereof and a second panel spaced from the first panel by an intermediate panel and having a tab support struck from the second panel, the support tab comprising a main portion and a shoulder portion and displaceable out of plane so that the end edge of the main portion abuts the first panel and the shoulder panel is juxtaposed to one of the foldable tabs when the carton is set up.

Still another aspect of the invention provides a package which comprises one or more containers each including a substantially cylindrical upper portion and a part radially protruding from the upper portion, and a carton accommodating the containers and having a top panel disposed over the upper portions of the containers. The top panel has a support tab struck therefrom. The support tab comprises a main portion hingably connected to the top panel along a first fold line and a shoulder portion hingably connected to the main portion along a second fold line that extends transversely of the first fold line. The support tab is folded along the first and second fold lines so that an edge of the shoulder portion is disposed in engagement with the underside of the radially protruding part of one of the containers whereby the load of the one container is transferred directly to the top panel when the package is lifted by the top panel.

Brief Description of the Drawings

In the drawings:

FIGURE 1 is a plan view of an unfolded single paperboard blank from which a carton according to the invention is formed;

FIGURES 2 and 3 illustrate a carton in part formed condition from the carton blank shown in Figure 1; and

FIGURE 4 shows a carton formed from the blank shown in Figure 1.

Detailed Description of the Preferred Embodiment

Referring now to Figure 1, there is shown a carton blank 10 for forming a top gripping carton and made from paperboard or similar foldable sheet material. The blank 10 comprises an inner top panel 12, a first side panel 14, a base panel 16, a second side panel 18, and an outer top panel 20 hingably connected one to the next along fold lines 22, 24, 26 and 28 respectively.

Three support tabs 30 are struck from inner top panel 12 being laterally aligned and spaced intermediate the side edges of inner top panel 12. Each tab 30 is hingably connected to inner top panel 12 along a respective one of fold lines 32, being configured and longitudinally intermediate the end edge of panel 12 and fold line 22.

Turning to the detail of one of the support tabs 30, it comprises a main portion 34 and a pair of shoulder portions 36, 38 hingably connected to opposing side edges of main portion 34 along fold lines 40, 42. Each shoulder portion, 36, 38 comprises a substantially linear upper edge 44 and 46 respectively each edge 44, 46 being in an angular relationship with main portion 34, and shaped to engage the underside of a radially protruding part of an article when the carton is in a set up condition. It is envisaged that the position and shape of these edges 44, 46 will vary according to the shape of the radially protruding part of the article. Optionally, the main portion 34 is approximately equal in length to side panels 14, 18.

The two further support tabs 30 each comprise a main portion and shoulder portion being similar in shape and configuration to the support tab hereinbefore described and are therefore not described in any greater detail.

As illustrated in Figure 1, base panel 16 is formed with three pairs of retaining tabs 74, 75, 76 being struck from base panel 16 adjacent to fold line 24 and laterally spaced intermediate the side edges of base panel 16. Turning in detail to the configuration of one pair of retaining tabs 74, there comprises tab 48 is struck from

and hingably connected to base panel 16 along fold line 24 with its distal edge 52 extending inwardly of base panel 16. Tab 48 comprises opposed side edges 54, 56 which curve outwardly to the distal edge 52, such that the distal edge 52 is longer than the edge 60 connecting to base panel 16. A second tab 50 is hingably connected to base panel 16 along fold line 62 positioned in a central region of base panel 16. Tab 50 is oppositely disposed to tab 48 with its distal edge 64 juxtaposed the distal edge 52 of tab 48. Likewise, the side edges 66, 68 are curved outwardly towards its distal edge 64 to provide an distal edge 64 which is longer than fold line 62 connected to the base panel 16. The curved side edges 54, 56; 66, 68 of tabs 48 and 50 respectively define a substantially circular aperture 70, shown in Figure 2, when the tabs 48, 50 are in a set up condition. Preferably, an elongate aperture 72 is struck from the central portion of tabs 48 and 50 to provide a small notch along each of their respective distal edges 52, 64.

The other two pairs of retaining tabs 75, 76 are substantially identical to the first pair of retaining tabs 74 and are not therefore described in any greater detail.

Base panel 16 is also formed with three further pairs of retaining tabs 78, 80, 82 being struck from base panel 16 adjacent to fold line 26 and laterally spaced intermediate side edges of base panel 16. Turning in detail to the configuration of one pair of retaining tabs 78, there comprises tab 84 is struck from and hingably connected to base panel 16 along fold line 26 with its distal edge 86 extending inwardly. Tab 84 comprises opposed side edges 88, 90 which curve outwardly to the distal edge 86, such that the distal edge 86 is longer than the edge 60 connecting to base panel 16. A second tab 92 is hingably connected to base panel 94 positioned in a central region of base panel 16. Tab 92 is oppositely disposed to tab 84 with its distal edge 96 juxtaposed the distal edge 86 of tab 48. Likewise, the side edges 98, 100

are curved outwardly towards its distal edge 96 to provide an distal edge 96 which is longer than fold line 94 connected to the base panel 16. The curved side edges 88, 90; 98, 100 of tabs 84 and 92 respectively define a substantially circular aperture 102, shown in Figure 2, when the tabs 84, 92 are in a set up condition. Preferably, an elongate aperture 104 is struck from the central portion of tabs 84 and 92 to provide a small notch along each of their respective distal edges 86, 96.

The other two pairs of retaining tabs 80, 82 are substantially identical to the first pair of retaining tabs 48, 50 and are not therefore described in any greater detail.

Side panel 14 comprises three apertures 106 struck from fold line 22 being spaced one to next intermediate side edges of side panel 14. Each aperture 106 is "yoke" like in shape to define a portion 108 of panel 12 which extends into side panel 14. Likewise, side panel 18 comprise three apertures 110 struck from fold line 28 each being spaced one to next intermediate side edges of side panel 18. Each aperture 110 is "yoke" like in shape to define a portion 112 of panel 20 which extends into side panel 18.

As illustrated in Figure 1, a handle tab 114 is struck from and hingably connected to a central portion of outer top panel 20 along fold line 116. In this embodiment, handle tab 114 is substantially aligned with central support tab 30 of inner top panel 12 when the carton is in a set up condition.

Turning to the construction of carton, as illustrated in Figures 2, 3 and 4, the blank requires a series of sequential folding and gluing operations which can be performed in a straight line machine so that the carton is not required to be rotated or inverted to complete its construction. The folding process is not limited to that described below and can be altered according to particular manufacturing requirements. Thus,

bottles B are grouped together in two rows of three bottles B and the blank 10 is introduced to the group from above by relative vertical movement between the bottles B and the blank 10 during forward feed movement well known in the art.

Each pair of retaining tabs 74, 75, 76 and 78, 80, 82 are folded along their respective fold lines 24, 62; 26, 94 and out of their general plane with respect to base panel 16 to create article receiving apertures 70, 102 shown in Figure 2. The upper portions or neck portions of the bottles enter their respective apertures until the distal edges 52, 64; 86, 96 of the retaining tabs come into contact with the radially protruding parts, e.g., the respective crown corks, of the bottles B associated within each of the apertures. Optionally, the edge of each article receiving apertures are in contact with the neck portion of each of the respective bottles B to provide additional support.

In this embodiment, the notch formed in the distal edge of each of the tabs 48, 50; 84, 92 engages the underside of the respective crown cork C. It is advantageous to incorporate such notches for more accurate alignment of the tabs and/or to provide a tab which comes into contact with more of the underside of the crown cork than conventional tabs.

Thereafter, side panel 14 is folded about fold line 24 and inner top panel 12 is folded about fold line 22 so that inner top panel 12 is disposed over the crown corks C and in a substantially parallel and spaced relationship with base panel 16. Support tabs 30 are folded along fold lines 32 out of their general plane and towards base panel 16. In this embodiment, the distal edge of main portions 34 abut base panel 16 to maintain the spacing between panels 12 and 16 thereby to minimize relative movement between bottles and/or base panel 16 and top panels 12, 20. Shoulder panels 36 and 38 are folded out of alignment with main portion 34 of each tab 30 along fold lines 40, 42

respectively. By this means, the upper edge 44, 46 of each shoulder portion 36, 38 is received in the notch along the distal edge of the respective retaining tab and is thereby allowed to reach the crown cork C of the adjacent bottle to engage the underside of the crown cork C. Thus, the main portion 34 is maintained in an angular relationship with respect to top panel 12. In addition, the tabs 50, 92 formed from base panel 16 are also held in place by being in a face to face relationship with respective ones of the shoulder panels 36, 38, as shown in Figure 3.

Side panel 18 is folded about fold line 26 and outer top panel 20 is folded about fold line 28 such that outer top panel 20 is placed in a face to face relationship with inner top panel 12. Inner and outer top panels 12, 20 are secured together by glue or other means known in the art. The carton is in a set up condition as shown in Figure 4.

By folding inner and outer base panels 12, 20 out of alignment with respective ones of the side walls 14, 18, the extended portions 108, 112 protrude beyond fold lines 22 and 26 respectively. In this embodiment, part of the crown corks C of each bottle protrude through apertures 106, 110 with the extended portions 108, 112 of panels 12 and 20 respectively being in registry with the top of the protruding portions of each respective bottle. Optionally, side panels 14 and 18 are juxtaposed to respective retaining tabs 48, 84 of base panel 16 to assist in maintaining their engagement with the underside of the crown corks.

In use, handle tab 114 is folded inwardly along fold line 116 to create a hand aperture to receive a user's finger to enable the carton to be carried. Because the retaining tabs 74, 75, 76, 78, 80 and 82 engage the crown corks C of the packaged bottles, the load of the bottles is transferred directly to the top wall when the carton is lifted by the hand aperture.

The present invention and its preferred embodiment relate to an article carrier which is shaped to provide satisfactory strength to hold bottles securely but with a degree of flexibility so that load transferred to the handle is absorbed by the carrier. The shape of the blank minimizes the amount of paperboard required and the carrier can be applied to an array of bottles by hand or automatic machinery. It is anticipated that the invention can be applied to a variety of carrier and not limited to those of the top gripping sort.

CLAIMS

1. A carton of the top gripping type for accommodating a plurality of containers, which carton is tubular in structure and comprises first and second spaced panels, said first panel having a plurality of apertures for receiving said containers respectively, each of said apertures being defined by at least one foldable retaining tab for operatively engaging an underside of a radially protruding part of a respective one of said containers, said second panel comprising a support tab struck from said second panel, said support tab comprising a main portion hingably connected to said second panel and a first shoulder portion hingably connected to said main portion so as to engage said underside of said radially protruding part of one of said containers to restrict movement of said second panel relative to said one container.

2. The carton according to claim 1 wherein said each aperture is defined by a pair of said retaining tabs struck from said first panel, said retaining tabs being disposed in substantially opposed positions, at least one of said retaining tabs having a shallow notch for receiving an edge of said shoulder portion to allow said edge to reach said radially protruding part of said one container.

3. The carton according to claim 1 or 2 wherein said support tab further comprises a second shoulder portion for engaging the underside of a radially protruding part of a container adjacent to said one container, said second shoulder portion being oppositely disposed said first shoulder portion.

4. A unitary blank for forming a carton of a top gripping type which comprises a first panel having a plurality of apertures each defined by at least one foldable retaining tab hingably connected to said first panel to be folded out of a general plane of said first

panel, and a second panel spaced from said first panel by an intermediate panel and having a tab support tab struck therefrom, said support tab comprising a main portion and a shoulder portion, said support tab being displaceable out of a plane of said second panel so that an end edge of said main portion abuts said first panel and said shoulder portion is juxtaposed to one of said retaining tabs when said carton is set up.

5. The blank according to claim 4 wherein said main portion of said support tab is hingably connected to said second panel along a fold line, and said shoulder portion is hingably connected to said main portion, said edge of said shoulder potion being spaced from said fold line.

6. A package comprising:

at least one container each including a substantially cylindrical upper portion and a part radially protruding from said upper portion; and

a carton accommodating said at least one container and having a top panel disposed over said upper portion of said at least one container,

wherein said top panel has a support tab struck therefrom, said support tab comprising a main portion hingably connected to said top panel along a first fold line and a shoulder portion hingably connected to said main portion along a second fold line extending transversely of said first fold line, said support tab being folded along said first and second fold lines so that an edge of said shoulder portion is disposed in engagement with an underside of said radially protruding part of one of said at least one container whereby load of said one container is transferred directly to said top panel when said package is lifted by said top panel.

7. The package according to claim 6 wherein said carton is of a tubular structure, and said main portion of said support tab is folded inwardly of said carton.

8. The package according to claim 6 wherein said edge of said shoulder portion is an upper edge of said shoulder portion spaced from said top panel.

9. The package according to claim 6 wherein said main portion is disposed between said one container and an adjacent container to minimize relative movement between said one and adjacent containers.

10. The package according to claim 6 wherein said carton is of a top gripping type having a base panel opposed to said top panel, and said support tab abuts said base panel to minimize relative movement between said top and base panels.

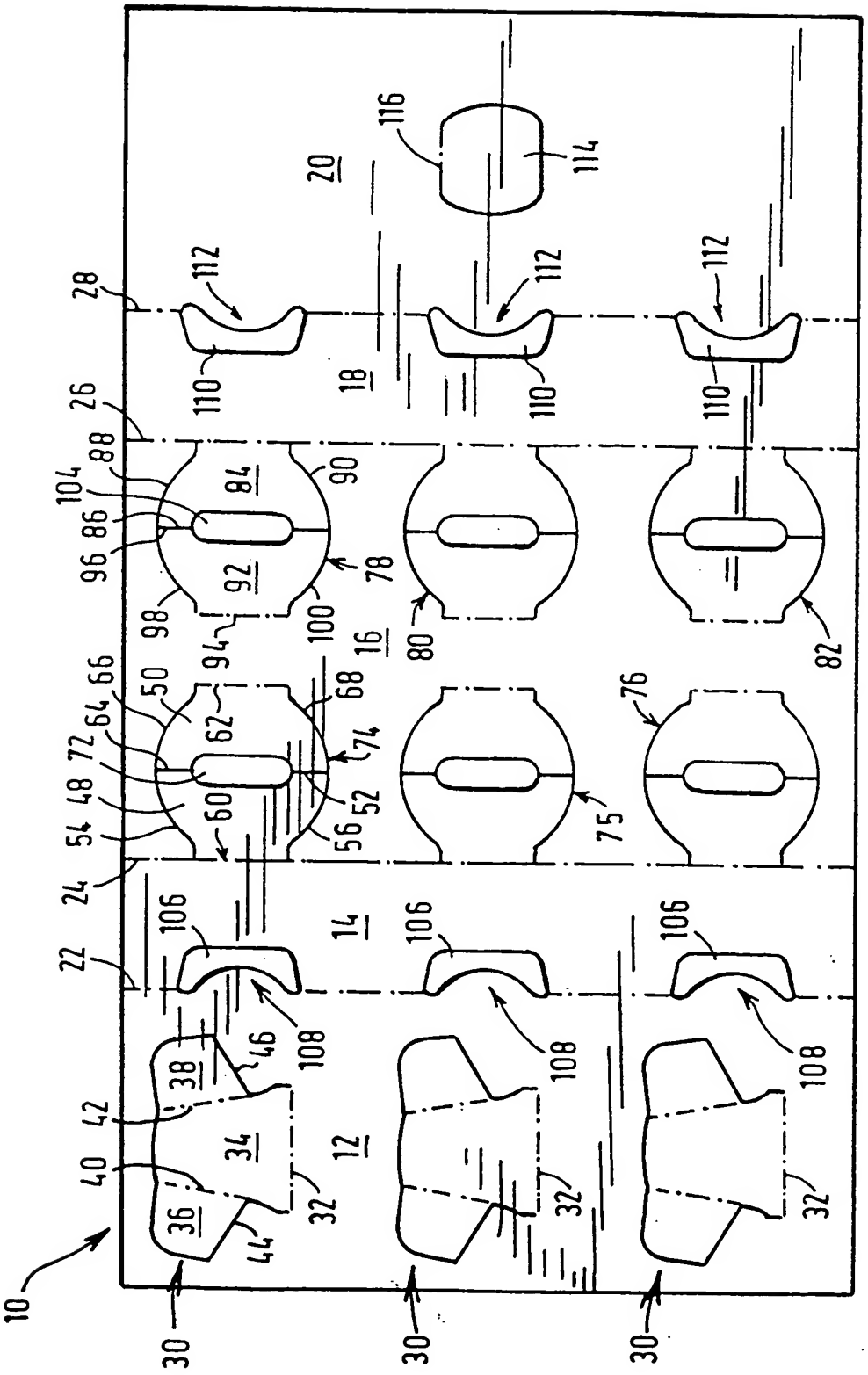
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FIG. 1

FIG. 2

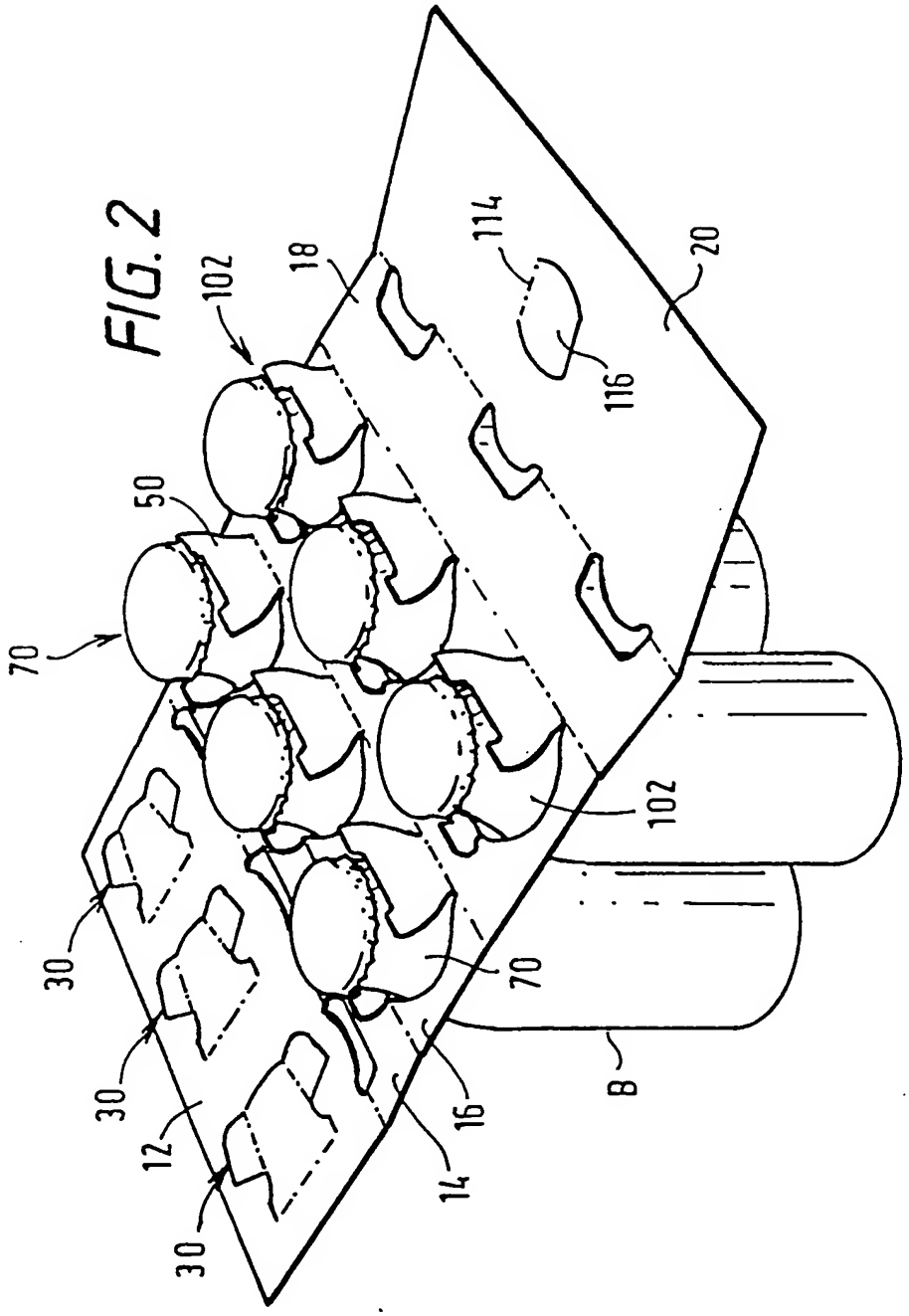


FIG. 3

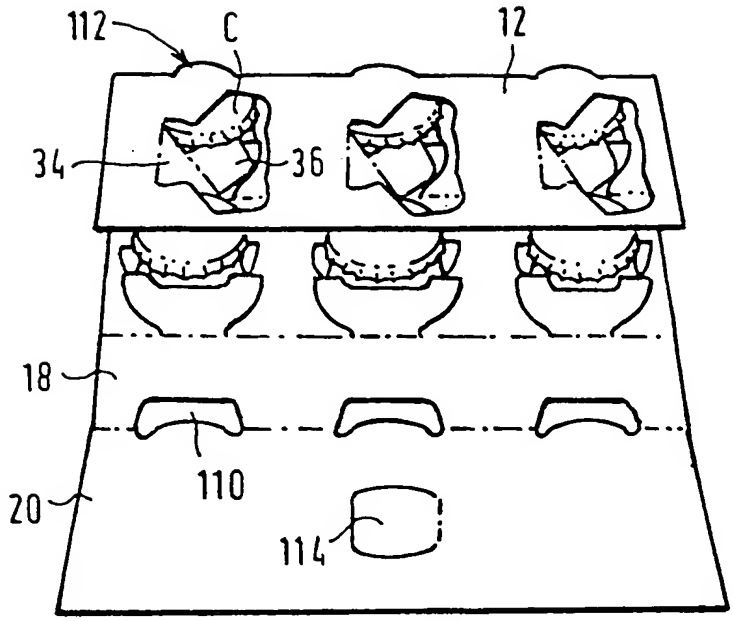
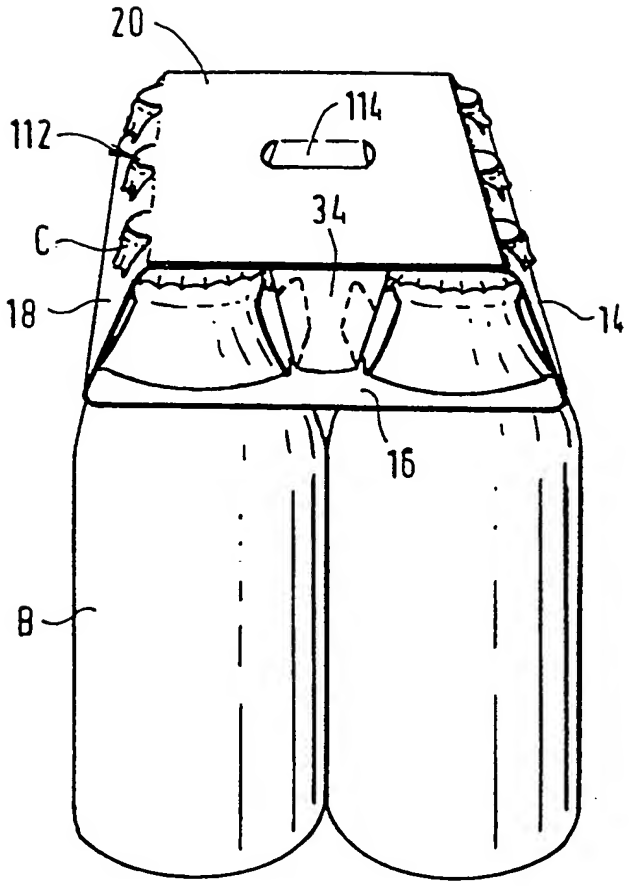


FIG.4



INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 98/07651

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 B65D71/46

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3 722 945 A (THE MEAD CORPORATION) 27 March 1973 see the whole document	1,4,6
A	FR 2 664 239 A (SIMONEAU IMPRIMEUR & CARTONNAGES DE L'OUEST S.A.) 10 January 1992 see figures 3-5	1,2,4,6

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
4 August 1998	12/08/1998

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